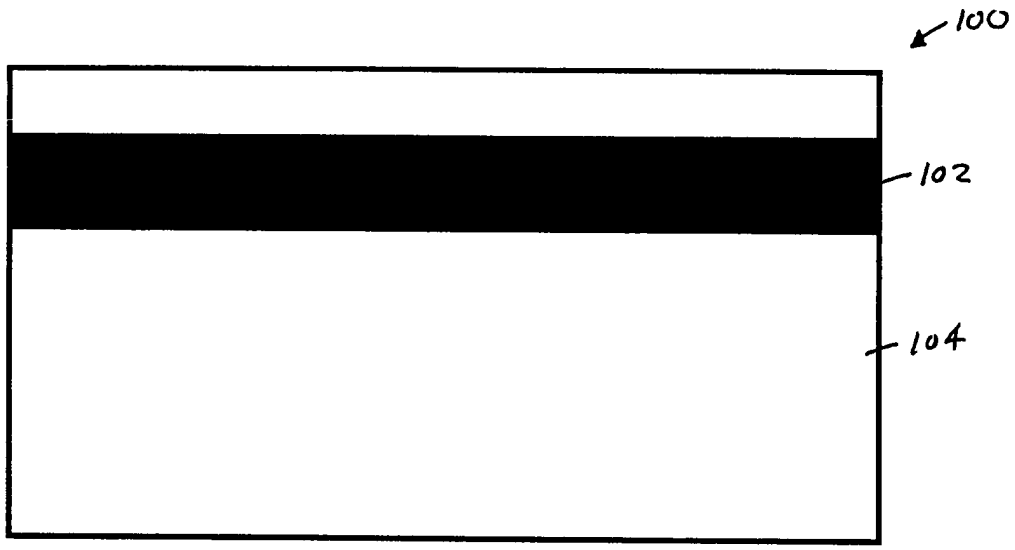

FIG. 1 (PRIOR ART)

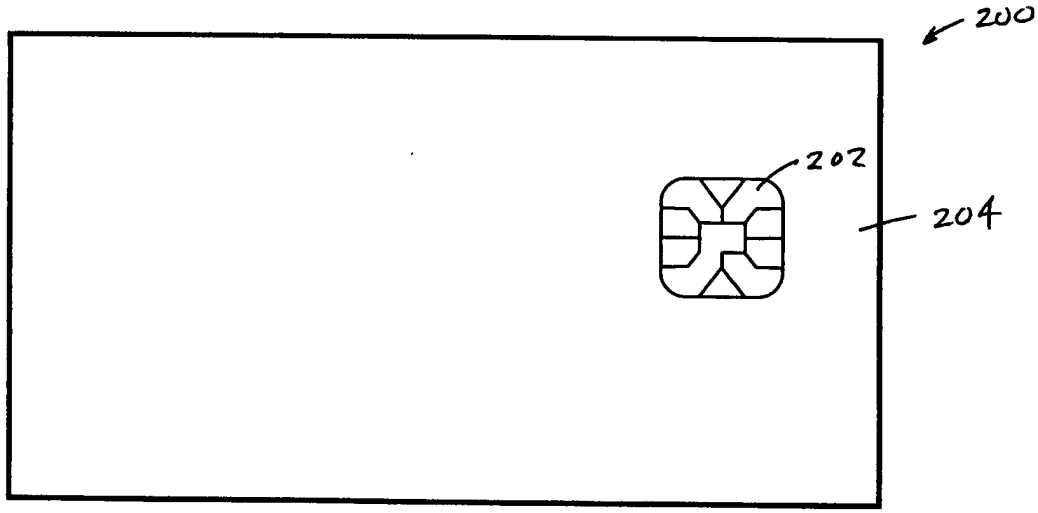

FIG. 2 (PRIOR ART)

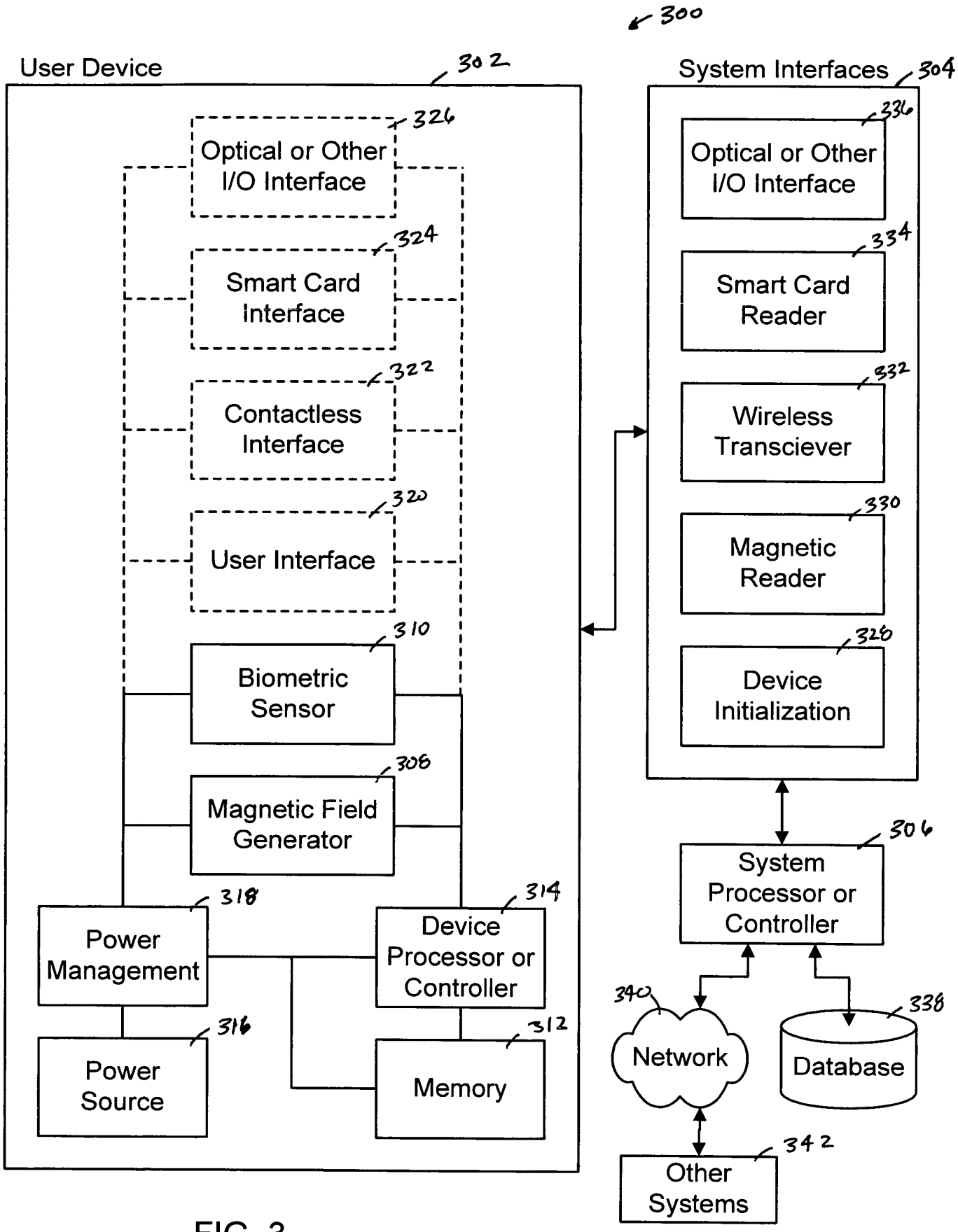
300
User Device
302
Optical or Other I/O Interface
326
Smart Card Interface
324
Contactless Interface
322
User Interface
320
Biometric Sensor
310
Magnetic Field Generator
308
Power Management
318
Device Processor or Controller
314
Power Source
316
Memory
312
System Interfaces
304
Optical or Other I/O Interface
336
Smart Card Reader
334
Wireless Transciever
332
Magnetic Reader
330
Device Initialization
328
System Processor or Controller
306
Network
340
Database
338
Other Systems
342

FIG. 3

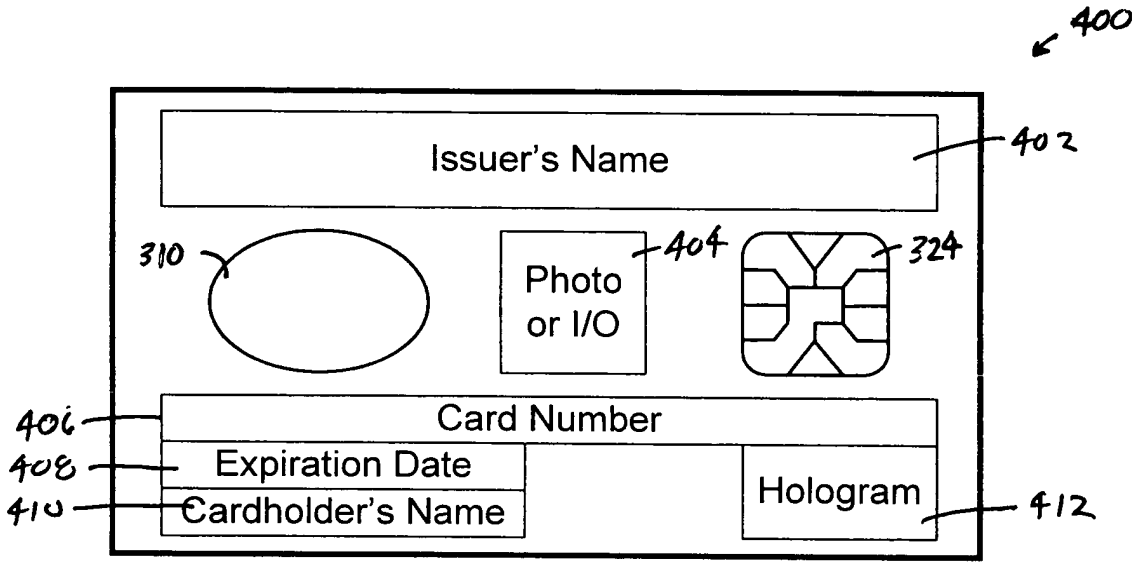
400
Issuer's Name
402
310
Photo or I/O
404
324
406
Card Number
408
Expiration Date
410
Cardholder's Name
Hologram
412

FIG. 4A

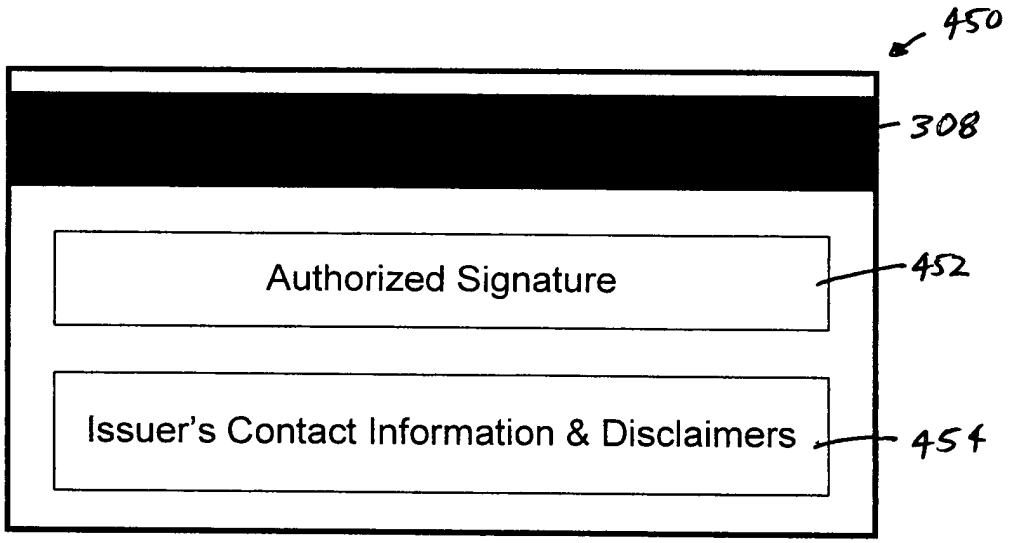
450
308
Authorized Signature
452
Issuer's Contact Information & Disclaimers
454

FIG. 4B

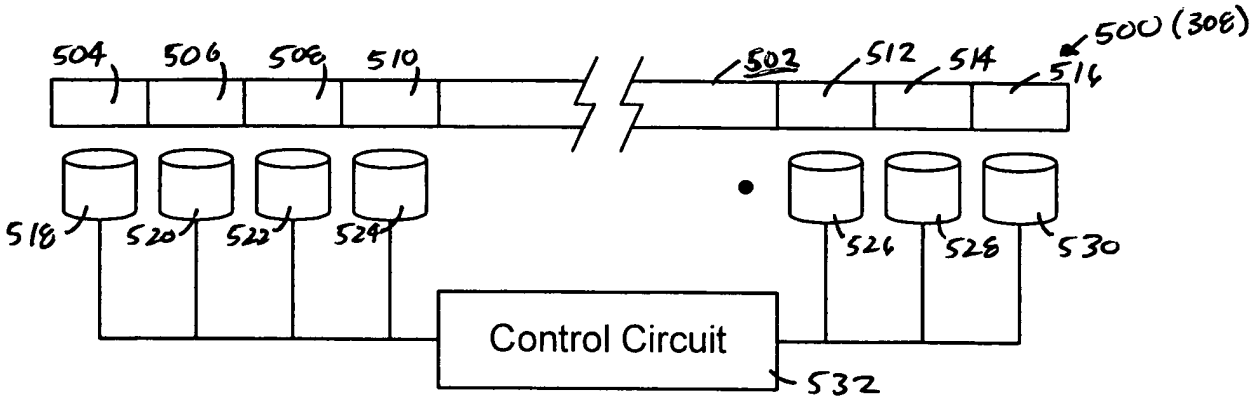

FIG. 5A

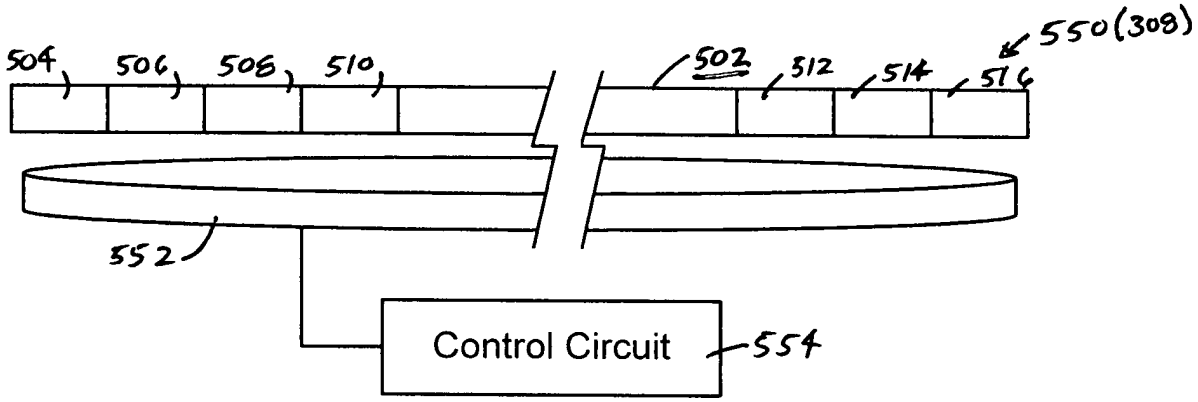

FIG. 5B

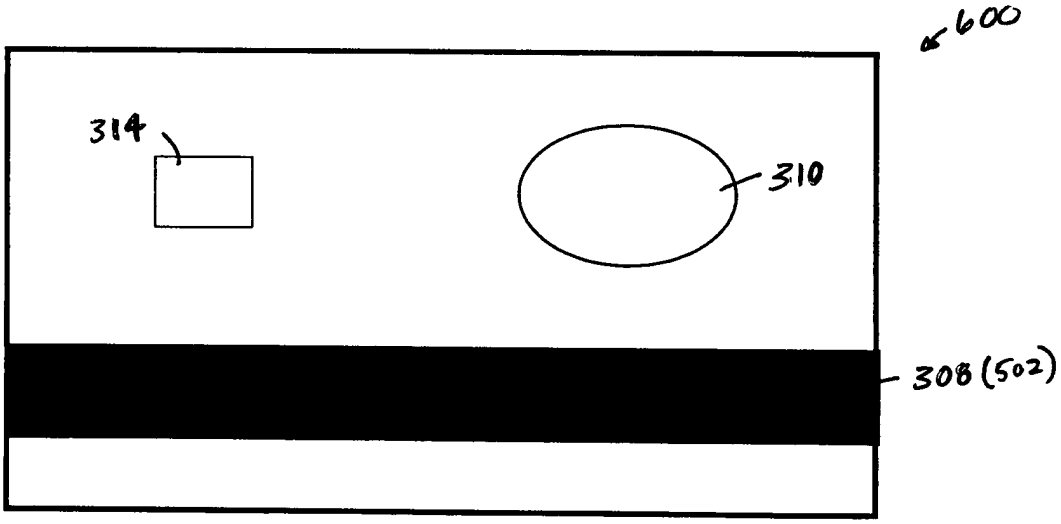

FIG. 6

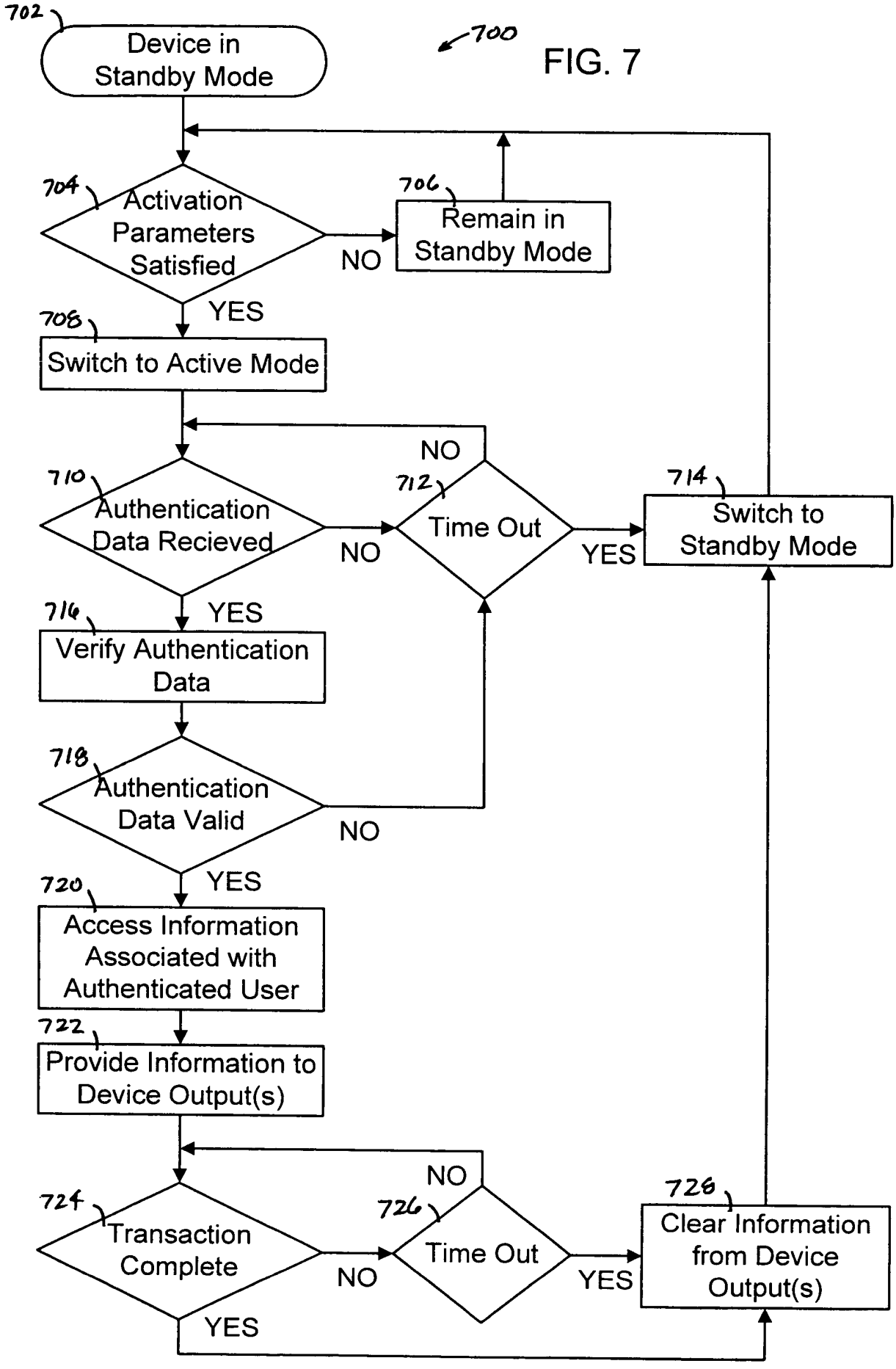
702
Device in Standby Mode
700
704
Activation Parameters Satisfied
NO
706
Remain in Standby Mode
YES
708
Switch to Active Mode
NO
710
Authentication Data Recieved
NO
712
Time Out
YES
714
Switch to Standby Mode
YES
716
Verify Authentication Data
718
Authentication Data Valid
NO
YES
720
Access Information Associated with Authenticated User
722
Provide Information to Device Output(s)
NO
724
Transaction Complete
NO
726
Time Out
YES
726
Clear Information from Device Output(s)
YES

FIG. 7

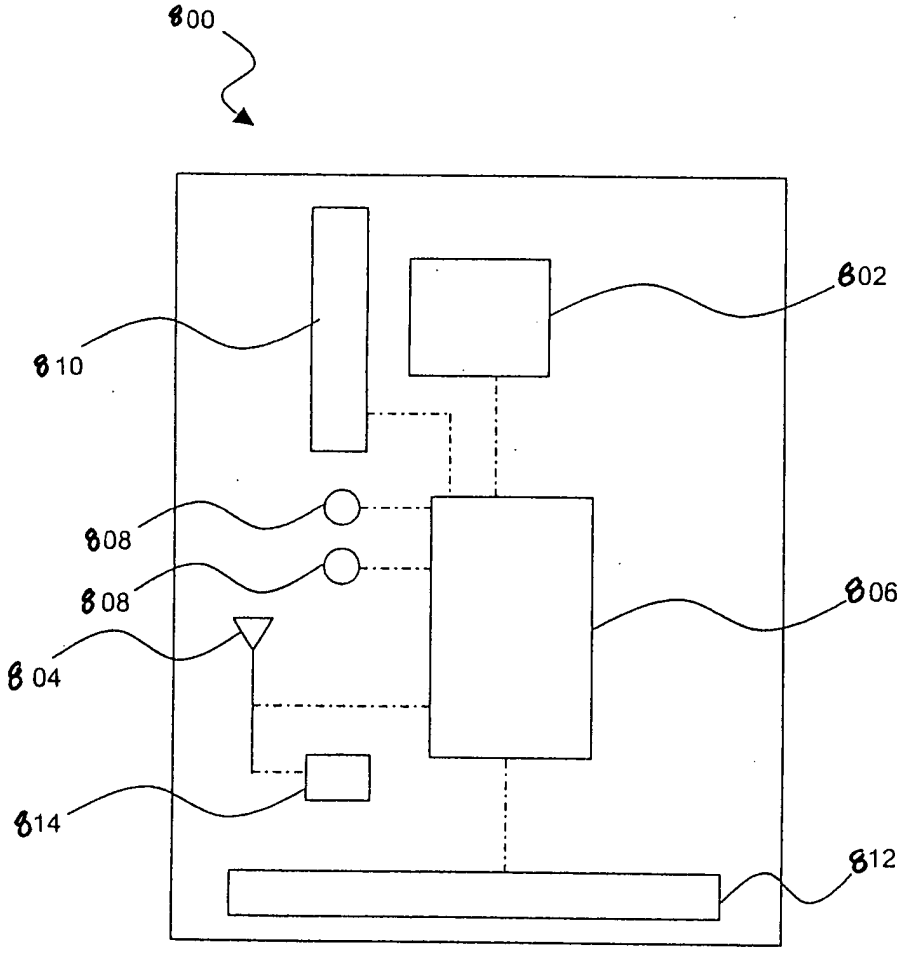

Fig. 8

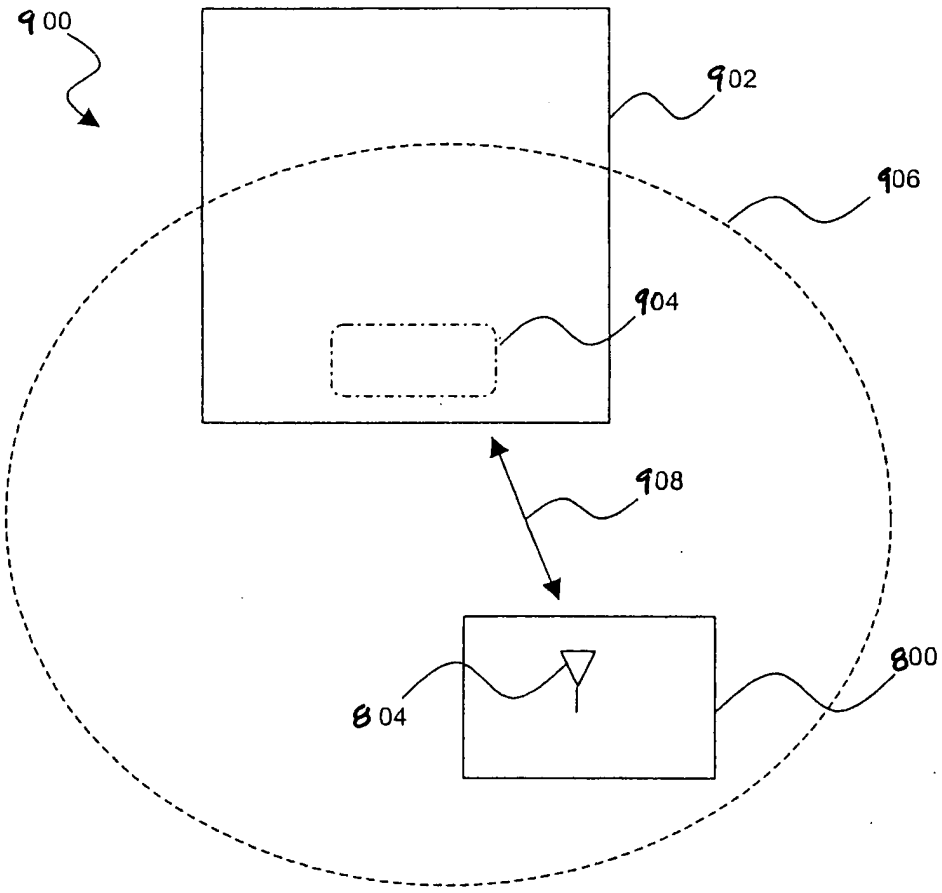

Fig. 9

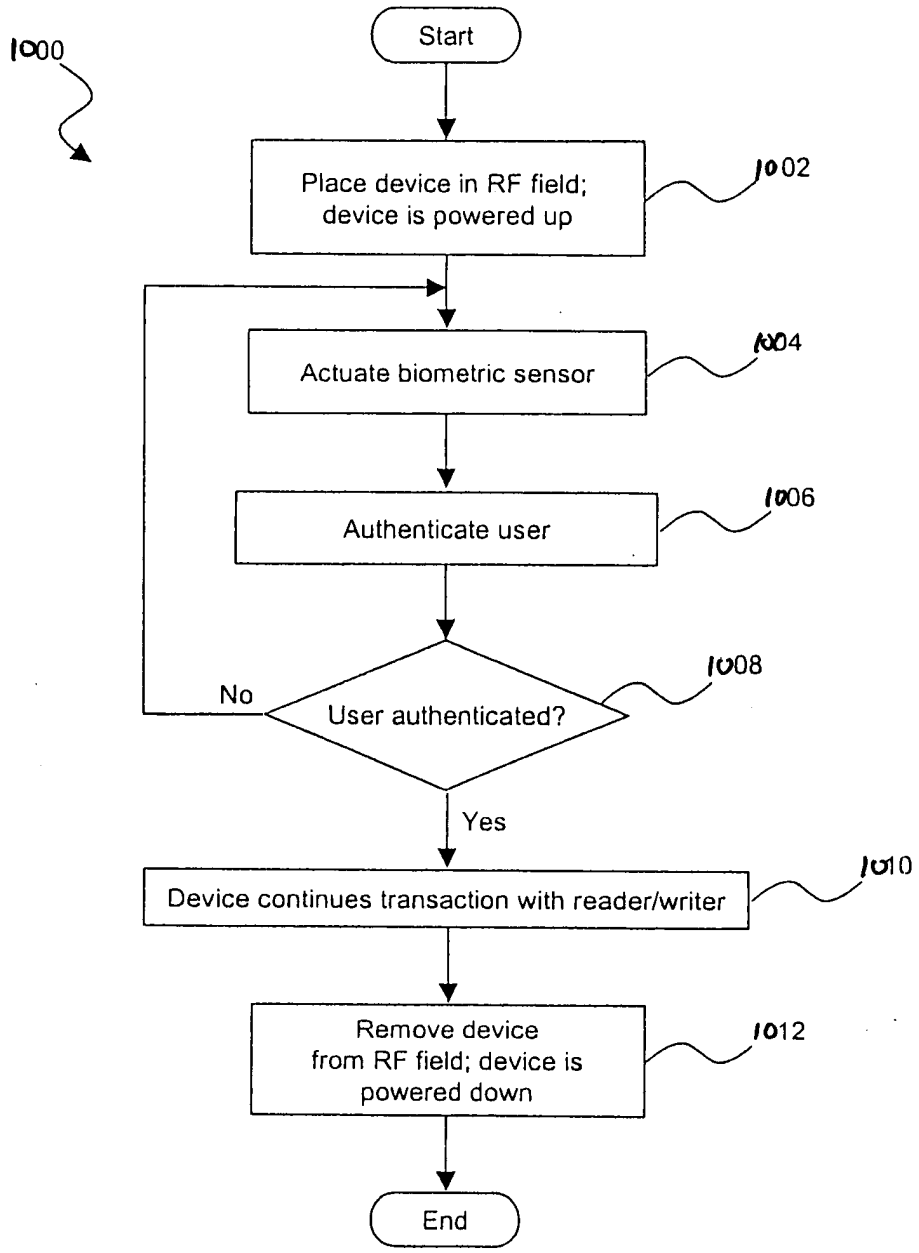
1000
Start
Place device in RF field; device is powered up
1002
Actuate biometric sensor
1004
Authenticate user
1006
User authenticated?
1008
No
Yes
Device continues transaction with reader/writer
1010
Remove device from RF field; device is powered down
1012
End

Fig. 10

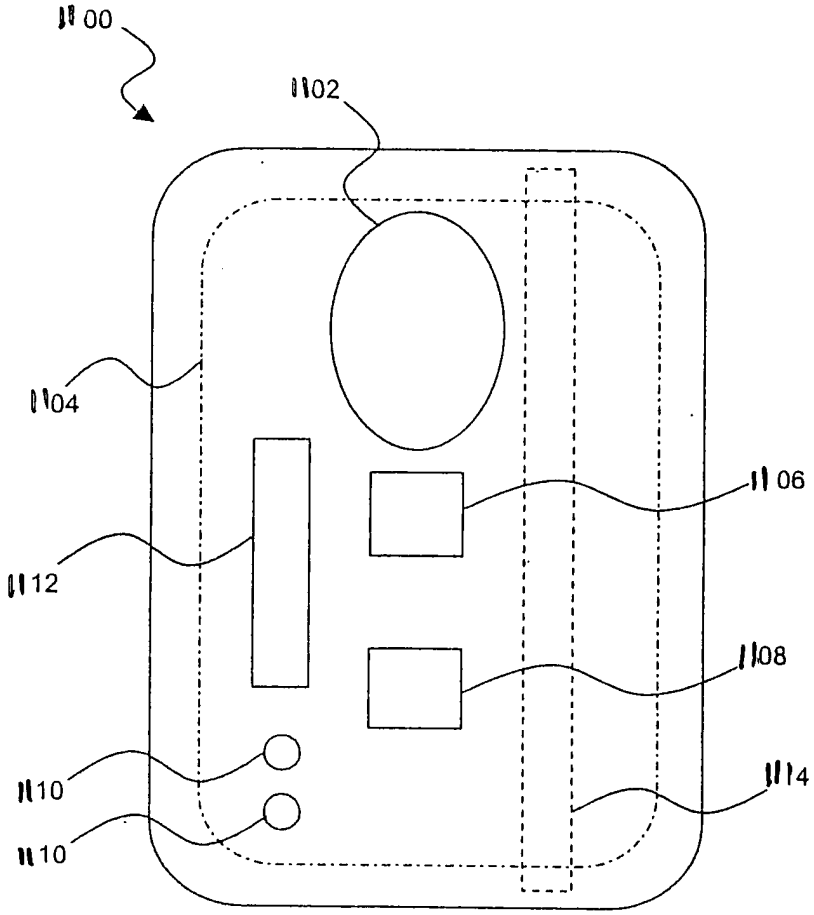

Fig. 1

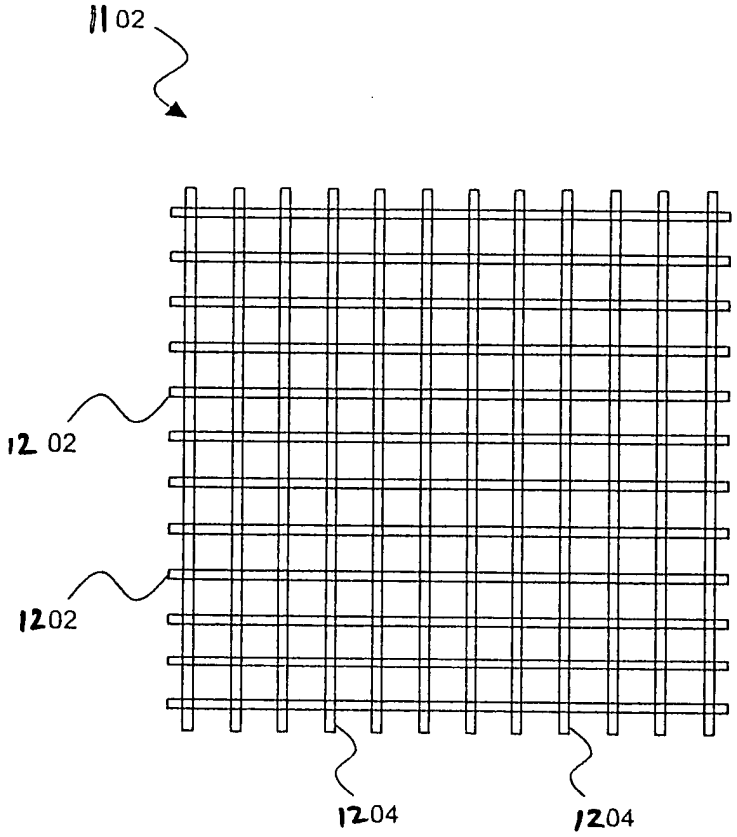

Fig. 12

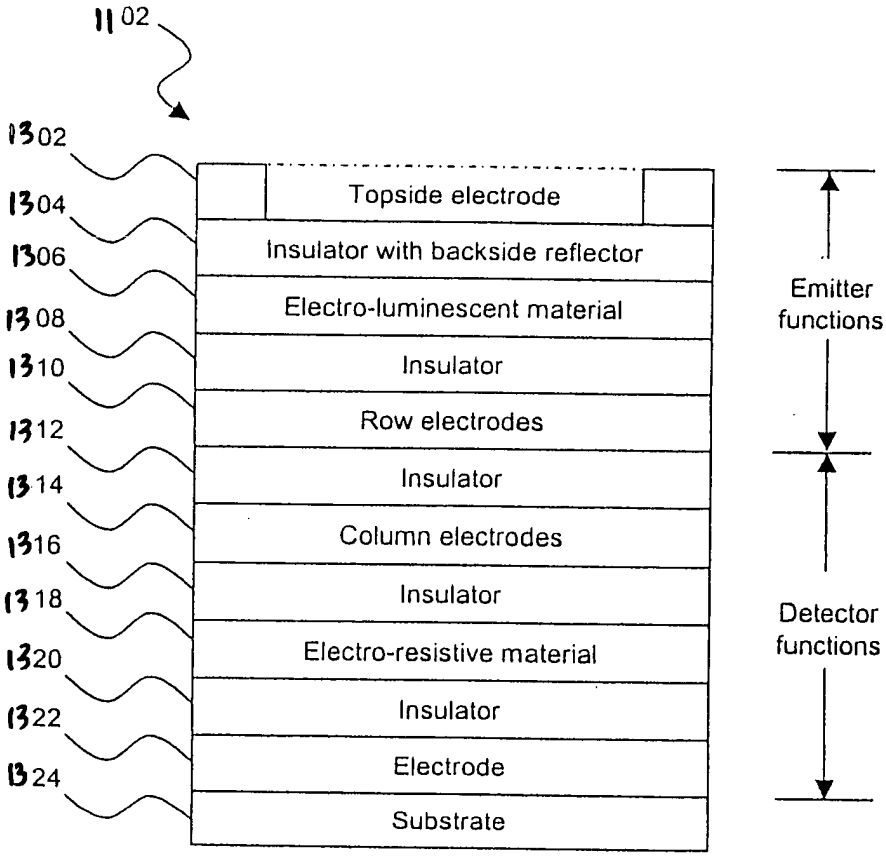
1102
1302
1304
1306
1308
1310
1312
1314
1316
1318
1320
1322
1324
Topside electrode
Insulator with backside reflector
Electro-luminescent material
Insulator
Row electrodes
Insulator
Column electrodes
Insulator
Electro-resistive material
Insulator
Electrode
Substrate
Emitter functions
Detector functions

Fig. 13A

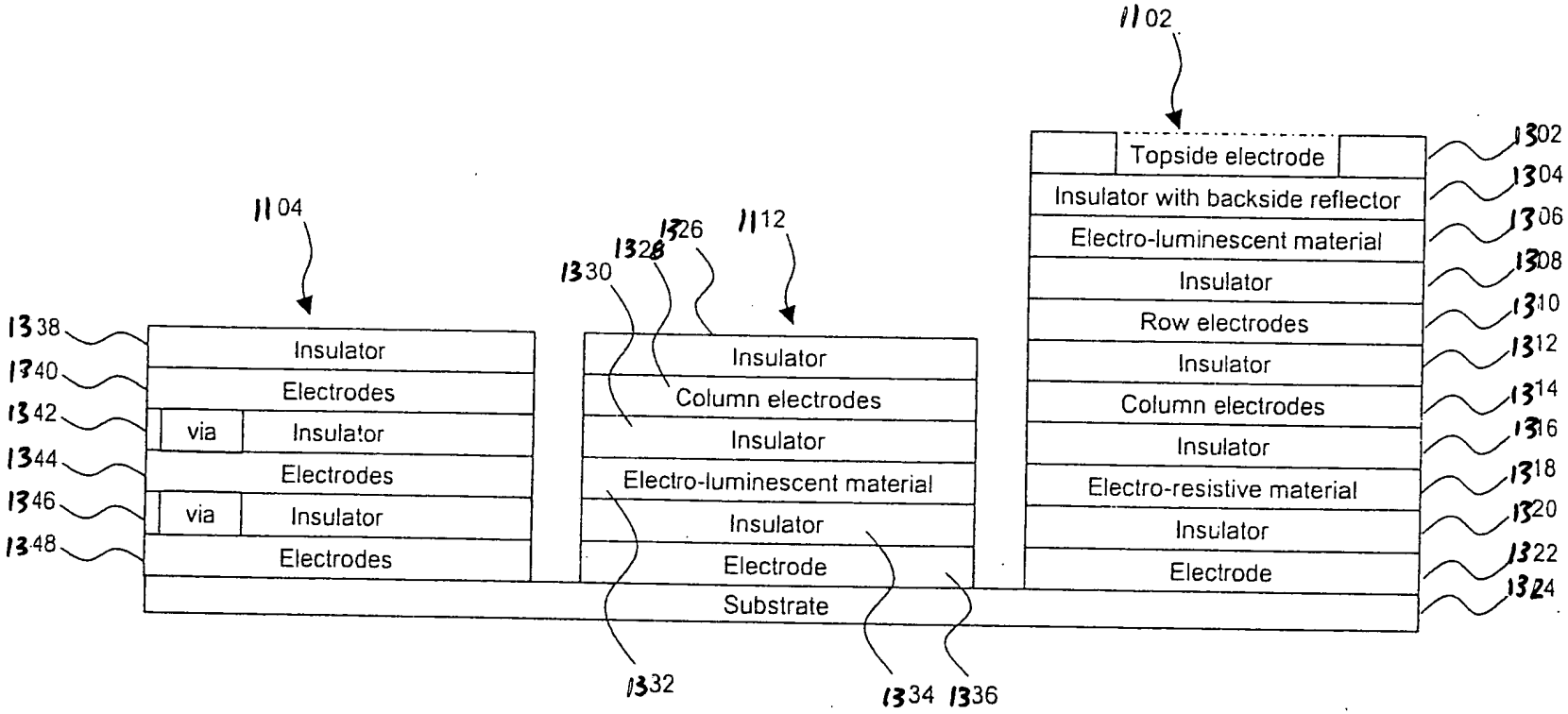
1102
1104
1112
1326
1328
1330
1338
1340
1342
1344
1346
1348
Insulator
Electrodes
via
Insulator
Electrodes
via
Insulator
Electrodes
Insulator
Column electrodes
Insulator
Electro-luminescent material
Insulator
Electrode
Substrate
Topside electrode
Insulator with backside reflector
Electro-luminescent material
Insulator
Row electrodes
Insulator
Column electrodes
Insulator
Electro-resistive material
Insulator
Electrode
1302
1304
1306
1308
1310
1312
1314
1316
1318
1320
1322
1324
1332
1334
1336

Fig. 13B

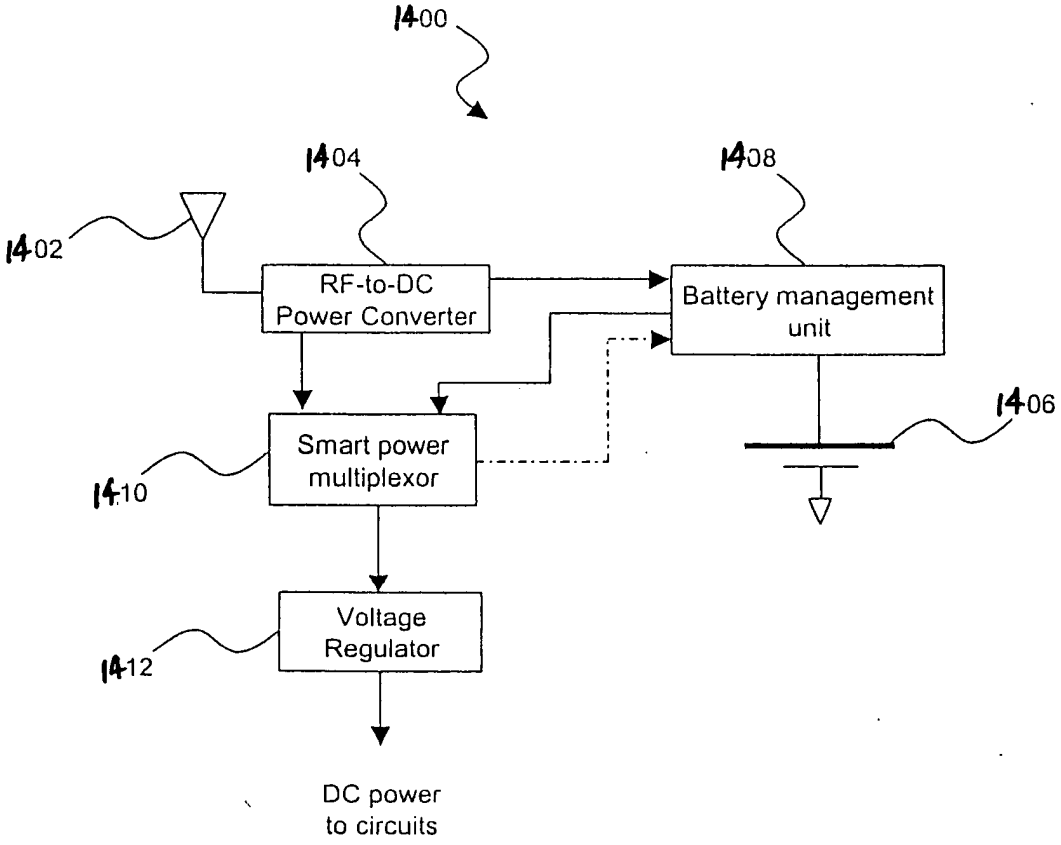
1400
1404
1408
1402
RF-to-DC
Power Converter
Battery management
unit
1406
Smart power
multiplexor
1410
Voltage
Regulator
1412
DC power
to circuits

Fig. 14

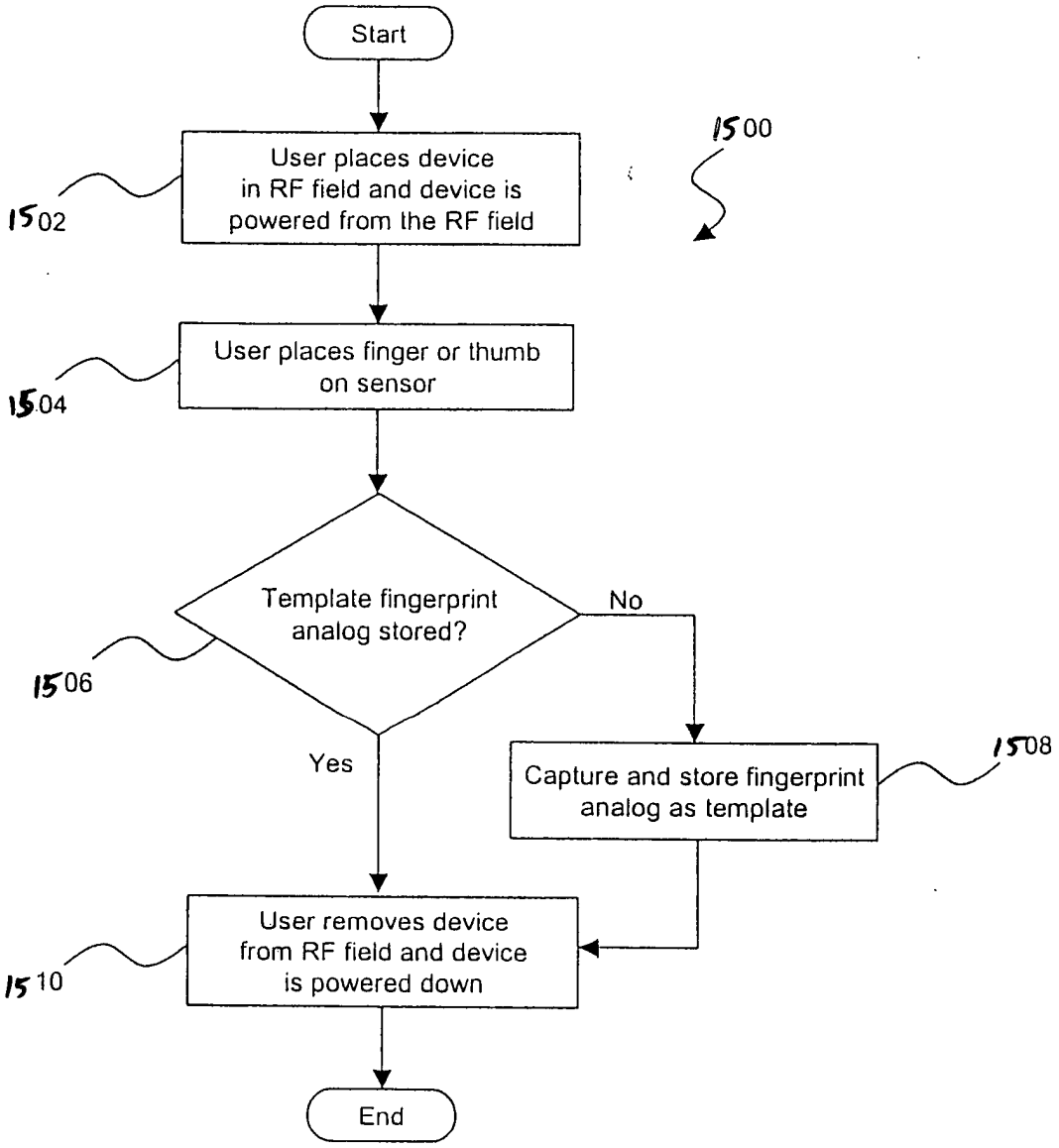
Start
User places device in RF field and device is powered from the RF field
1502
1500
User places finger or thumb on sensor
1504
Template fingerprint analog stored?
1506
No
Yes
Capture and store fingerprint analog as template
1508
User removes device from RF field and device is powered down
1510
End

Fig. 15

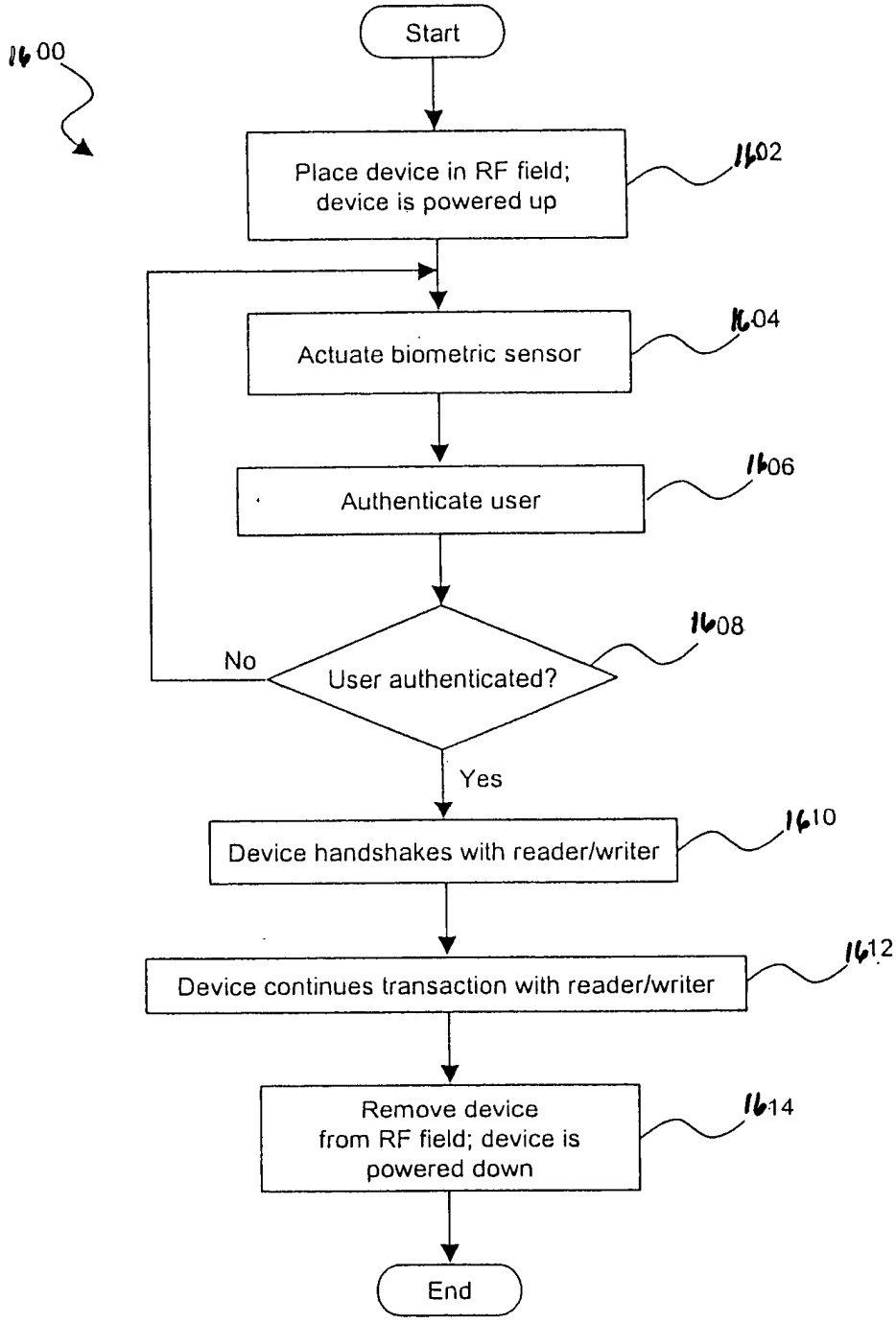
1600
Start
Place device in RF field; device is powered up
1602
Actuate biometric sensor
1604
Authenticate user
1606
User authenticated?
1608
No
Yes
Device handshakes with reader/writer
1610
Device continues transaction with reader/writer
1612
Remove device from RF field; device is powered down
1614
End

Fig. 16

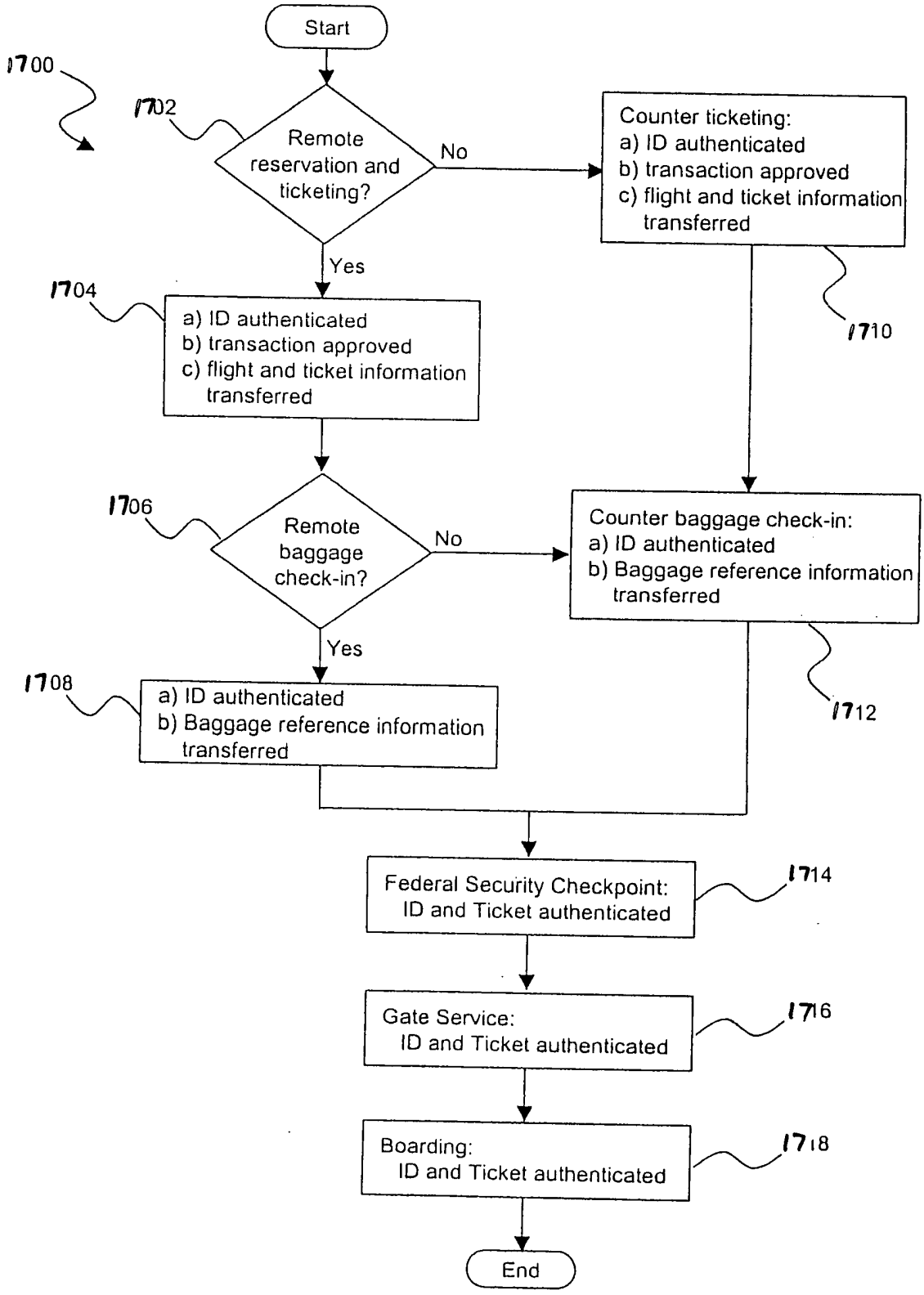
Start
1700
1702
Remote reservation and ticketing?
No
Yes
Counter ticketing:
a) ID authenticated
b) transaction approved
c) flight and ticket information transferred
1710
1704
a) ID authenticated
b) transaction approved
c) flight and ticket information transferred
1706
Remote baggage check-in?
No
Yes
Counter baggage check-in:
a) ID authenticated
b) Baggage reference information transferred
1712
1708
a) ID authenticated
b) Baggage reference information transferred
Federal Security Checkpoint:
ID and Ticket authenticated
1714
Gate Service:
ID and Ticket authenticated
1716
Boarding:
ID and Ticket authenticated
1718
End

Fig. 17

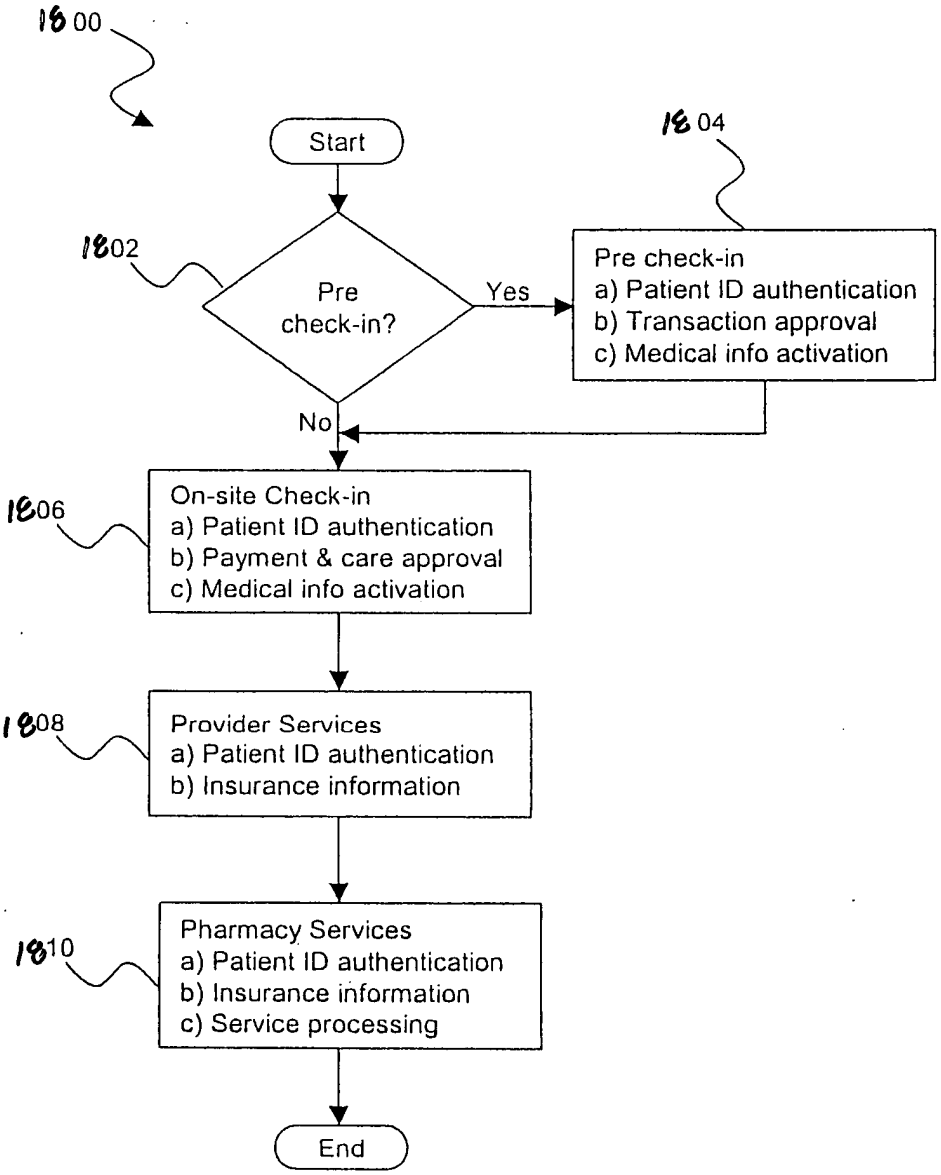
1800
Start
1804
1802
Pre check-in?
Yes
Pre check-in
a) Patient ID authentication
b) Transaction approval
c) Medical info activation
No
1806
On-site Check-in
a) Patient ID authentication
b) Payment & care approval
c) Medical info activation
1808
Provider Services
a) Patient ID authentication
b) Insurance information
1810
Pharmacy Services
a) Patient ID authentication
b) Insurance information
c) Service processing
End

Fig. 18

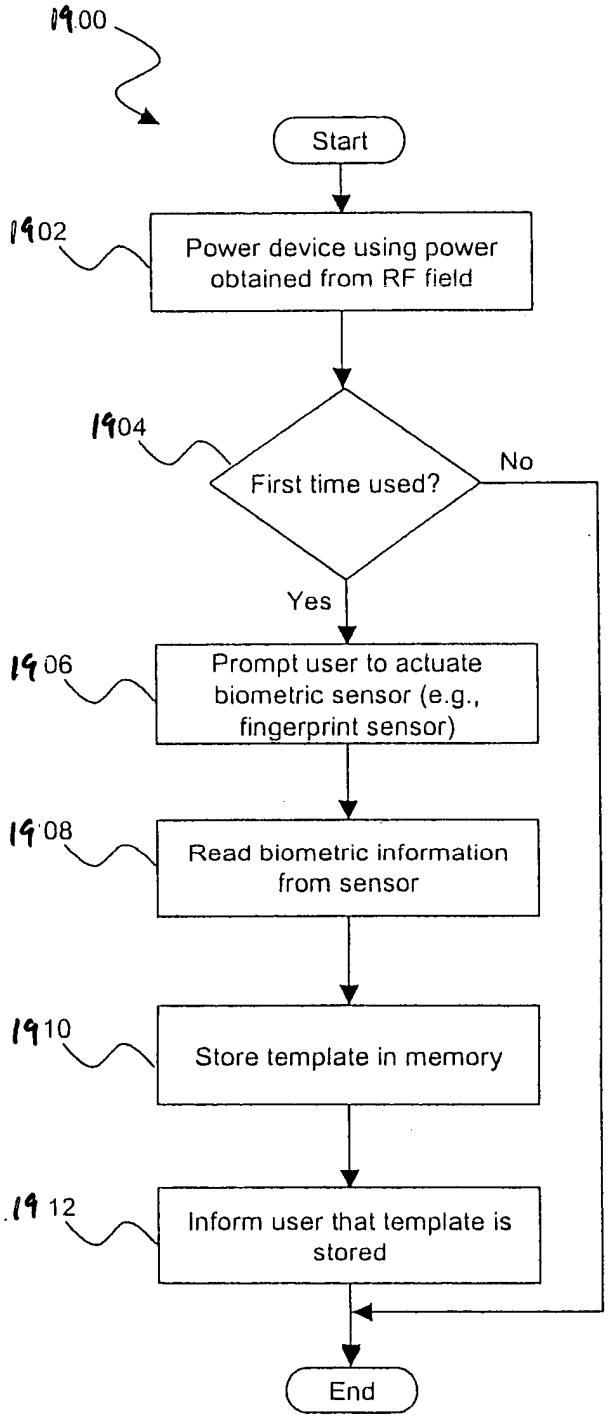
1900
Start
1902
Power device using power obtained from RF field
1904
First time used?
No
Yes
1906
Prompt user to actuate biometric sensor (e.g., fingerprint sensor)
1908
Read biometric information from sensor
1910
Store template in memory
1912
Inform user that template is stored
End

Fig. 19

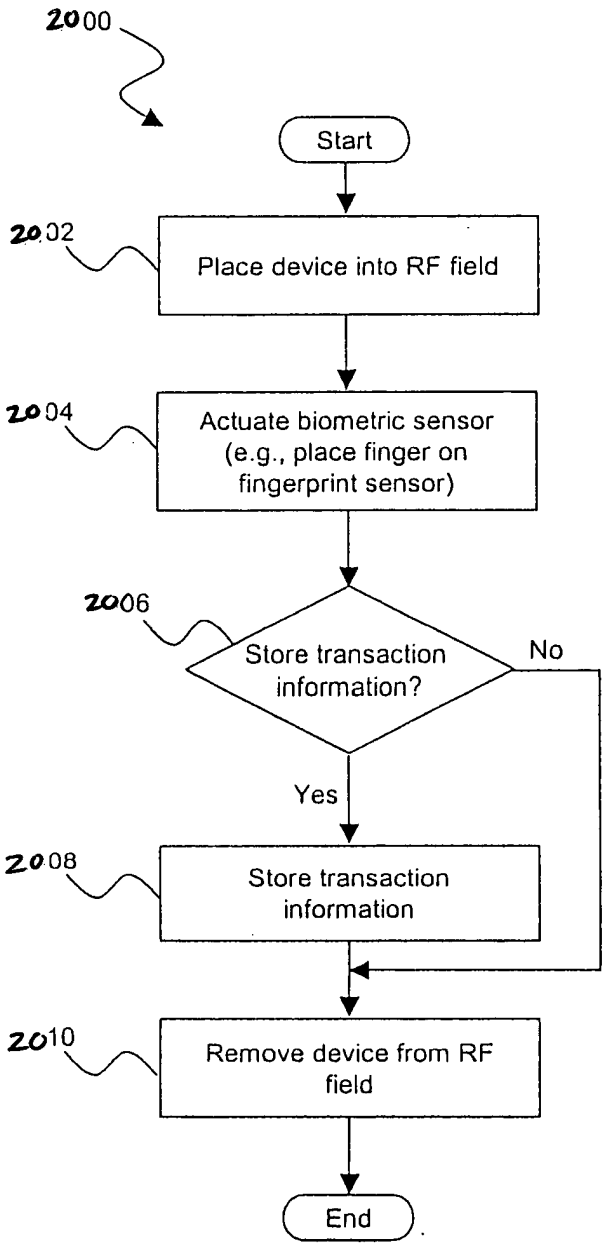
2000
Start
2002
Place device into RF field
2004
Actuate biometric sensor (e.g., place finger on fingerprint sensor)
2006
Store transaction information?
No
Yes
2008
Store transaction information
2010
Remove device from RF field
End

Fig. 20